

STUDY MODULE DESCRIPTION FORM		
Name of the module/subject Introduction to scientific research		Code 1010604161010606966
Field of study Aerospace Engineering	Profile of study (general academic, practical) general academic	Year /Semester 3 / 6
Elective path/specialty Safety and Management of Aviation	Subject offered in: Polish	Course (compulsory, elective) obligatory
Cycle of study: First-cycle studies	Form of study (full-time, part-time) part-time	
No. of hours Lecture: 9 Classes: - Laboratory: - Project/seminars: -		No. of credits 1
Status of the course in the study program (Basic, major, other) other		(university-wide, from another field) university-wide
Education areas and fields of science and art technical sciences Technical sciences		ECTS distribution (number and %) 1 100% 1 100%
Responsible for subject / lecturer: dr inż. Wojciech Karpiuk email: wojciech.karpiuk@put.poznan.pl tel. 616475993 Faculty of Transport Engineering ul. Piotrowo 3 60-965 Poznań		Responsible for subject / lecturer: dr inż. Wojciech Karpiuk email: wojciech.karpiuk@put.poznan.pl tel. 616475993 Faculty of Transport Engineering ul. Piotrowo 3 60-965 Poznań
Prerequisites in terms of knowledge, skills and social competencies:		
1	Knowledge	The student has basic technical knowledge in the field of aviation.
2	Skills	The student is able to obtain information from literature, databases and other, properly selected sources.
3	Social competencies	The student understands the need for lifelong learning, can inspire and organize the learning process of other people, understands the need and ability to self-education, has the ability to work in a team.
Assumptions and objectives of the course: Preparation for conducting scientific research, including the preparation of promotional thesis - the main goal. Other goals: - presentation of basic terms in the field of scientific research methodology, - learning the ability to formulate research problems - describing the methodological basis of writing scientific and promotional thesis (basic issues of their technical editing).		
Study outcomes and reference to the educational results for a field of study		
Knowledge: 1. has basic knowledge necessary to understand social, economic, legal and other non-technical conditions of engineering activities - [K1A_W24]		
Skills: 1. can obtain information from literature, the Internet, databases and other sources. Can integrate the information obtained and interpret conclusions and create and justify opinions - [K1A_U04]		
Social competencies: 1. understands the need to learn throughout life; can inspire and organize the learning process of others - [K1A_K01]		
Assessment methods of study outcomes		
Passing the lecture - one-choice test.		
Course description		

- definitions in the field of scientific research (science, knowledge, scientific work, methodology, method),
- scientific works, promotional works (engineering, master's, doctoral, habilitation),
- methodology and construction of the implementation of scientific works (functional and material sense),
- principles of conducting scientific research (processing of materials, preparation of results, etc.),
- research methods in scientific works (experiment, modeling, simulation),
- editing of scientific papers.

Basic bibliography:

1. Leszek W.: Wybrane zagadnienia metodyczne badań empirycznych. Wyd. Instytutu Technologii i Eksploatacji, Radom 2006.
2. Pytkowski W.: Organizacja badań i ocena prac naukowych. PWN, Warszawa 1985.

Additional bibliography:

1. Cempel C.: Nowoczesne zagadnienia metodologii i filozofii badań. Instytut Technologii Eksploatacji, Radom?Poznań 2005.
2. Kolman R.: Zdobywanie wiedzy. Oficyna Wydawnicza Branta, Bydgoszcz?Gdańsk 2004.
3. Kotarbiński T.: Dzieła wszystkie. Elementy teorii poznania, logiki formalnej i metodologii nauk. Ossolineum 1990.
4. Leszek W., Wojciechowicz B., Zwierzycki W.: Metodologia generowania i realizacji programów badawczych w nauce o eksploatacji obiektów technicznych. Wyd. Instytutu Technologii Eksploatacji, Radom?Poznań 2004.
5. Leszek W.: Badania empiryczne. Wybrane zagadnienia metodyczne. Instytut Technologii Eksploatacji, Radom 1997.
6. Leszek W.: Nieempiryczne procedury badawcze w naukach przyrodniczych i technicznych. Instytut Technologii Eksploatacji, Radom 1999.
7. Łobocki M. : Metody badań pedagogicznych. PWN, Warszawa 1984.
8. Mämmelä A.: How to Get a Ph.D. Methods and Practical Hints. W: III Interdisciplinary Technical Conference of Young Scientists, Intertech, Proceedings. Poznan University of Technology, Poznań 2010.
9. Pabis S.: Metodologia nauk empirycznych. Wyd. Uczelniane Politechniki Koszalińskiej, Koszalin 2007.
10. Wilson E, Bright J.: Wstęp do badań naukowych. PWN, Warszawa 1968.
11. Wisłocki K.: Metodologia i redakcja prac naukowych, Wydawnictwo Politechniki Poznańskiej, 2013.
12. Zieleniewski J.: O organizacji badań naukowych. PWE, Warszawa 1975.

Result of average student's workload

Activity	Time (working hours)	
1. Participation in the lecture	9	
2. Consultations	1	
3. Preparation for passing	8	
4. Participation in the completion of the subject	1	
Student's workload		
Source of workload	hours	ECTS
Total workload	19	1
Contact hours	11	1
Practical activities	0	0